Scale postural-instability–gait-difficulty (MDS-PIGD) score, and self-perceived balance confidence level documented by the Activities-specific Balance Confidence (ABC) Scale.
Results: A significant group × time interaction was found for all outcomes using a two-way repeated measures analysis of variance. Immediately after training and at 2-month follow-up, only the EXP group exhibited significant increases in mini-BESTest scores (mean differences = +11.4% and +12.6%, respectively; $p < 0.001$) and ABC scores (mean differences = +6.8% and +6.4%, respectively; $p < 0.01$), and a decrease in MDS-PIGD score (mean difference = −1.7 and −1.5, respectively; $p < 0.001$). At 6-month follow-up, only the EXP group showed a significant increase in mini-BESTest scores (mean difference= +11.0%; $p < 0.001$) and decrease in MDS-PIGD score (mean difference = −1.6; $p < 0.001$). Between-group comparisons indicated that the changes of mini-BESTest scores were significantly larger in the EXP group at post-training and both follow-ups.
Conclusion: Our programme enhanced balance performance and balance confidence in people with PD at post-training and 2-month follow-up. The benefits on balance performance could be carried over to the 6-month follow-up.

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Implementation of a breathlessness management programme with an incentive handheld fan as a nonpharmacological approach in dyspnoea management in patients with advanced chronic obstructive pulmonary disease and chronic heart failure

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Background and purpose: Most patients with chronic obstructive pulmonary disease (COPD) and chronic heart failure (CHF) experience breathlessness. An incentive handheld fan (IHF) has proved its complementary role for the ambulatory COPD and CHF patients with breathlessness in the United Kingdom (UK). It produces a flow of air that may alter ventilation when directed to the face, nasal mucosa, or pharynx, thereby reducing breathlessness in patients. In Hong Kong, many patients with advanced COPD and CHF are admitted to hospital due to severe breathlessness resulting in functional limitation and increased medical expenses. Thus, a breathlessness management programme with an IHF has been implemented since October 2011, aiming at reducing the breathlessness-induced limitations in functional activity and the patients' coping stress during acute exacerbation of severe breathlessness that required hospitalisation. The aim of this study was to analyse the effectiveness of the breathlessness programme with an IHF for advanced COPD and CHF patients with severe breathlessness and low functional mobility during hospitalisation.
Methods: Advanced COPD or CHF patients with an exercise level of lower than two METs who were admitted to hospital due to severe breathlessness were recruited into this programme. This programme included 10 minutes of IHF therapy and education of breathing techniques for controlling breathlessness. Physiotherapy assessment on the respiratory rate, oxygen saturation, pulse rate, and the dyspnoea numeric rating scale scores (0–10) was conducted prior to and after the IHF therapy. The 2 METs physical endurance exercise test was also performed for the measurement of exercise endurance level. Patients were encouraged to continue the IHF therapy and breathing control during the hospitalisation period.
Results: Eighty patients were recruited from October 2011 to May 2013. Respiratory rate was decreased from 32 ± 5/min to 28 ± 4/min ($p < 0.001$). Pulse rate was reduced from 94 ± 9/min to 86 ± 9/min ($p < 0.001$), and dyspnoea numeric rating scale score was reduced from 5 ± 0.5 to 2 ± 1.0 ($p < 0.001$). Patients did not report any discomfort. All patients were not able to complete two METs physical exercise prior to the programme. However, 70% of patients were able to complete two METs physical exercise demonstrating an improvement in exercise endurance level after this programme despite the fact that oxygen saturation was not optimised significantly (from 95 ± 2% to 96 ± 2%; $p > 0.1$).
Conclusion: The breathlessness management programme with the use of IHF therapy and breathing control technique provides an easy, safe, and inexpensive management option in patients with advanced COPD and CHF experiencing severe breathlessness that required hospitalisation. More studies with a larger sample size and randomised control trials are recommended to explore further the effectiveness of BMP with the use of IHF therapy and breathing control in advanced COPD and CHF patients with severe breathlessness.

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Effectiveness of a structured physical rehabilitation programme for a Chinese population with depressive disorders

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Background and purpose: Exercise was found to be effective in the management of depressive disorders among Western populations. The aim of this study was to investigate the effectiveness of a structured physical rehabilitation programme in improving physical fitness and negative psychological symptoms for a Chinese population with depressive disorders.
Methods: Seventy-two Chinese adults with depressive disorders were recruited from Kowloon Hospital with random allocation into two groups: (1) intervention group and (2) waitlist control group. Physical and mental outcome measures included body fat percentage, maximum hand-grip and quadriceps power, sit-and-reach test, 1-minute sit-up count, maximal oxygen consumption (VO_{2max}), Hamilton Depression Rating Scale, and Depression, Anxiety, Stress Scale (DASS-21). Postintervention satisfaction questionnaire on the programme was also conducted. Within-group difference was analysed by Wilcoxon signed ranks test, and Mann–Whitney *U* test was used for between-group comparison after 12 weeks.
Results: Preliminary data on the first 53 patients (intervention $n = 28$, control $n = 25$) with a mean age of 48.26 ± 10.13 years completed the programme. Baseline characteristics between these two groups were comparable. Significant within-group improvement was found in the intervention group (all $p < 0.05$), whereas no significant change was observed in the control group. For between-group comparison, the intervention group showed significantly greater improvement when compared with the control group, in all outcome parameters (all $p < 0.05$).
Conclusion: Despite cultural differences in symptom manifestation, a structured physical rehabilitation programme delivered by physiotherapists was effective in alleviating both physical and psychological symptoms in depression rehabilitation. Preliminary results supported local validation of the structured physical rehabilitation programme as an effective intervention in the management of Chinese patients with depressive disorders.

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Pilot upper limb rehabilitation programme for stroke patients utilising transcranial direct current stimulation

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Background and purpose: Recent evidences suggested that a noninvasive brain stimulation technique—transcranial direct current stimulation (tDCS)—can enhance upper limb functional recovery in stroke patients. The objectives of this programme were as follows: (1) to develop an integrated upper limb rehabilitation programme for stroke patients utilising tDCS and (2) to study the effect and feasibility of using tDCS on upper limb rehabilitation in stroke patients.
Methods: Seven stroke patients (4 females and 3 males) were recruited for the integrated upper limb rehabilitation programme. This programme provided five consecutive sessions of tDCS and the patients simultaneously received intensive physiotherapy upper limb functional training. Anodal stimulation by tDCS was conducted to the hand area of primary motor cortex, whereas cathodal stimulation was conducted to the contralateral supraorbital area. Each patient received 1 mA tDCS for 20 minutes. The Wolf Motor Function Test (WMFT) was used as an outcome measure. Assessments were performed prior to the first session and after the last session of treatment. Wilcoxon signed ranks test was used for statistical testing.

Results: The mean age of participants was 59.1 ± 13.2 years, and the mean time between stroke onset and tDCS application was 18.9 ± 11.9 days. No adverse effects of tDCS were reported. The mean score of WMFT increased from 2.27 ± 1.40 to 2.71 ± 1.43 ($Z = -2.379$, $p = 0.017$). The mean time for task completion of WMFT decreased from 52.4 ± 47.1 to 42.2 ± 38.0 seconds ($Z = -2.366$, $p = 0.018$).
Conclusion: The outcome evaluation shows that an integrated upper limb rehabilitation programme combining tDCS and intensive physiotherapy treatment improves upper limb motor function in stroke patients. These positive findings form a basis for future randomised sham-controlled trials to explore the effect of tDCS in enhancing upper limb functions in stroke patients.

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Reliability and validity of the 10-m walk test in dual-task conditions among people with chronic stroke

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Background and purpose: The ability to perform a secondary task while walking was suggested to be highly related to "real-life" mobility. There has been a lack of a reliable and validated test for assessing dual-task ability of stroke patients during walking. The aim of this study was to assess the test–retest reliability and construct validity of the 10-m walk test in dual-task conditions among people with stroke.
Methods: Participants were instructed to walk along a 10-m pathway at their comfortable speed under single and two dual-task conditions (naming fruits and serial 3 subtractions). Walking time in each condition and correct response rate (CRR; the number of correct response divided by walking time) for the added cognitive tasks were recorded. The time-matched CRR of the two cognitive tasks was also measured to assess the participants' performance in the single cognitive task condition. Participants were reassessed again within 1 week. Wilcoxon tests were used to compare the performance in 10-m walk test between single and different dual-task conditions. Intraclass correlation coefficients were used to examine the test–retest reliability of walking time and CRR in all dual-task conditions. Spearman's rank correlation coefficient was used to examine the intercorrelations among the walking times and CRR measured in the various test conditions.
Results: Twenty-eight chronic stroke patients (9 women and 19 men, mean aged 61.6 ± 6.9 years; > 6 months after onset) participated in this study. The participants were found to take longer to complete the 10-m walk no matter which secondary task (verbal fluency, $p < 0.001$; serial 3 subtractions, $p < 0.001$) was added. The CRR was not changed significantly for both naming fruit ($p = 0.94$) and serial 3 subtractions ($p = 0.29$) in dual-task conditions when compared with their respective time-matched single-task condition. In all three dual-task conditions, the reliability of the time taken to complete the 10-m walk was excellent ($ICC_{3,1} > 0.80$, $p < 0.001$), whereas the reliability of the CRR was moderate (naming fruit: $ICC_{3,1} = 0.59$, $p < 0.001$; serial 3 subtractions: $ICC_{3,1} = 0.64$, $p < 0.001$). The walking time in all three dual-task conditions are significantly correlated with each other ($\rho > 0.80$, $p < 0.001$). The correlations between walking time and CRR under dual-task conditions and those under single-task conditions were moderate to excellent ($\rho = -0.59$–0.88, $p < 0.001$).
Conclusion: When a secondary cognitive task was added, performance in the 10-m walk test was poorer whereas that in the cognitive task remained stable, indicating that priority was given to the cognitive task. Both walking time and CRR measurements of all dual-task conditions in the 10-m walk test at a comfortable speed were found to be reliable and valid. However, walking time is a better outcome for assessing dual-task ability due to its higher reliability.

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Promotion of staff health through a staff wellness programme in the New Territories West Cluster of the Hospital Authority

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Background and purpose: Promoting a healthy lifestyle is one of the important ways to minimise absenteeism, sickness, and injury in different industries. In order to promote physical and mental health by means of a regular exercise habit and learning different ways of relaxation, the Department of Physiotherapy in the New Territories West Cluster (NTWC) organised a series of wellness programme in NTWC in 2011–2013.
Objective: This study aimed to provide colleagues with different types of health promotion programme and evaluate the participants' satisfaction level for different courses.
Methods: A wide variety of staff wellness classes were conducted, which can be classified into exercise classes, relaxation workshop, and health education. All classes were conducted within 3 months' time in each year. Exercise classes included the Pilates exercise class, Yi Jin Jing Class, and Tai Chi 12 style class. Each class was conducted for 1 hour. Participants followed the instructor and also practised all exercises at home following an exercise DVD they were provided with. Workshops on relaxation included a stress relaxation workshop and an aroma and relaxation class. The health education class included acupuncture point massage. Workshops and educational classes were conducted for 45 minutes including demonstration; sample of aroma and/or massaging tools were given to participants for use at home.
Results: Sixteen different classes were conducted from 2011 to 2013. A total of 183 colleagues attended different classes, with an overall satisfaction rate varying from 86% to 100%. The response for enrolment was overwhelming, especially for exercise classes; the satisfactory rate was also higher in exercise classes (average = 95%). Participants also showed high motivation and positive response (93.3%) in continuing practice of the learned skills and exercise after classes.
Conclusion: Colleagues showed overwhelming responses in different types of staff wellness programmes and positive responses in sustaining a healthy lifestyle after the classes were demonstrated. With a high percentage of participants showing interest in continuation of exercise and practice of the learned skills, physical health, and health awareness are expected to be improved.

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Efficacy of a perioperative physiotherapy care programme for patients undergoing abdominal surgery in Tseung Kwan O Hospital

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Background and purpose: Postoperative pulmonary complications (PPCs) such as atelectasis and pneumonia are common in patients following major abdominal surgery, which in turn can lead to suboptimal oxygen saturation and limit tissue healing. Lung expansion is a well-known strategy to prevent PPCs at the early postoperative phase. Patient's active participation in lung expansion is important. To enhance patients' compliance and participation, the Physiotherapy Perioperative Care Program (PPCP) was formulated. The aim of this study is to investigate and evaluate the effectiveness of PPCP for optimising oxygen saturation (SPO_2), preventing PPCs, and hastening rehabilitation.
Methods: This is a retrospective, pre- and post-test study. From July 2012 to December 2012, a convenient sample of high-risk patients with a smoking history, obesity, a pre-existing lung disease, functional dependence, and age ≥ 60 years who received major abdominal surgery was recruited to participate in PPCP. It consisted of two phases. (1) *Preoperative phase*. Preoperative chest physiotherapy such as education on the importance of early mobilisation and postoperative exercise was provided to the patients, carers, and nurses in charge. Patients were also prescribed with a spirometer and the Bed-side Chest Physiotherapy Reminder Card with the exercise regime illustrated. The exercise regime included 10 repetitions of chest expansion and 20 repetitions of ankle exercise hourly. (2) *Postoperative phase*. Intensive chest expansion, coughing exercise, bronchial hygiene, appropriate positioning, and progressive mobilisation exercise were provided by a physiotherapist daily. Reinforcement of postoperative exercise as showed in the exercise card was provided by nurses and carers after physiotherapy services hours.
The outcomes of this study included inspiratory capacity measured by a spirometer, SPO_2 on Postoperative Days 1–3, incidence of documented PPCs, preoperative and predischarge Modified Functional Ambulation Categories (MFAC), and discharge destination.
Results: Sixty-seven patients participated in the programme. Overall, the patients achieved an average of 70% of normal inspiratory capacity upon discharge. The mean SPO_2 on Days 1–3 was maintained at 98%, which is above the recommended value. PPCs occurred in 4.4% of patients ($n = 3$), which is lower than the rate of 9–40% reported in previous research.